

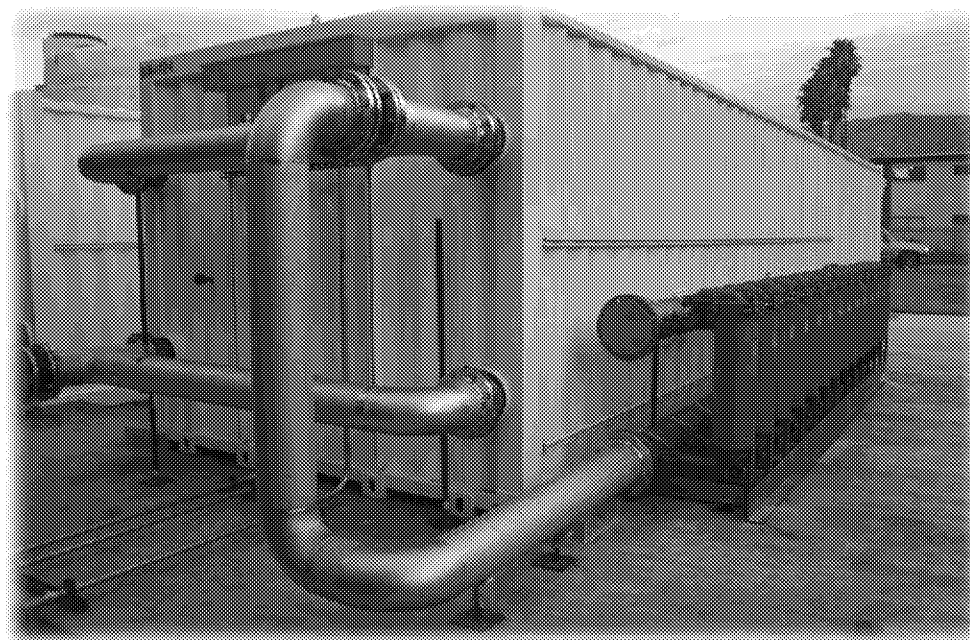


A Lifecycle Performance Company

Engineers Estimate for the Treatment of Perchlorate/Chlorate/Nitrate in Las Vegas Wash Water with Ion Exchange

NERT

June 9, 2015



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Preface/Disclaimer

Envirogen Technologies, Inc. (Envirogen) is pleased to provide this estimate to furnish, install and operate a Water/Wastewater Treatment System for removal of target contaminants from the specified target stream. This is submitted for the Trust's rough budgetary use only and is not to be considered as either a binding proposal or a binding offer by Envirogen to do work and/or supply equipment. The substance of this budget is captured in the text that follows below.

System Design Criteria

Based on a request from NERT, Envirogen evaluated the following problem description;

Background: Southern Nevada Water Authority (SNWA) is installing two new weirs both upstream and downstream of Pabco Road Weir. Sunrise Weir will be constructed 1,800 feet upstream of Pabco Road Weir and the Historic Lateral Weir Expansion is located 4,000 feet downstream. In order to construct the new weirs, the contractor will establish a temporary groundwater extraction system at both weir locations to facilitate construction of the footings and weir in the dry. All extracted groundwater will be conveyed to an ion exchange (IX) System provided by NERT. The objective is to treat groundwater such that perchlorate concentrations in the effluent do not exceed 18 ug/L (ppb).

Assumptions:

1. Flow rate will be up to 6,900 gpm.
2. Perchlorate concentrations will be up to 5 mg/L (ppm).
3. The IX Systems will be spotted near Pabco Road Weir.
4. All extracted groundwater will be conveyed to a location near Pabco Road by the Weir construction contractor.
5. Water chemistry will be similar to the Seep Well Field (SWF).
6. Water will be largely free of solids and similar to SWF.
7. Water treatment will be required for 1.5 years.

Basis of Design

Table 1 – Basis of Design

Influent Water Quality Conditions	Value
Average System Flow Rate (gpm)	6,900
Perchlorate mg/L	5.0
Chlorate mg/L	7.6
Nitrate mg/L	5.8
Chloride mg/L	2,000
Sulfate mg/L	2,000
Total Coliform	Not Present
Hetrophic Plate Count (CFU/mL) - <i>assumed</i>	<500
pH	6.5 – 7.5

Scope of Supply

Equipment

The following constitutes the equipment required for the temporary treatment of water outlined in Table 1 above. Effluent from this facility would have a perchlorate concentration of 18 ppb or less and at the plant effluent point the effluent is at 35 psig.

- Temporary Equalization Tank, approximately 150,000 gallons, temporary panel and liner style tank
- Pumping Skids, 4 skids total containing 2 pumps each. Each pump rated at 1,000 gpm and dedicated to a Sim Pack IX unit
- Pre-Filter Assembly, 8 total assemblies, one per Sim Pack IX unit, each is Stainless Steel, skid mounted, 10 filter housing assembly with elements
- SimPACK Ion Exchange System, 8 total, (7 operating and 1 standby), each consisting of
 - Containerized, modular nitrate removal system containing sixteen 36" x 57" FRP vessel assemblies measuring 10"W x 35'L x 10"H
 - 400 Cubic Feet of perchlorate selective resin.
 - PLC based control system with SCADA reporting and monitoring. System includes remote telemetry
 - Temporary Office/Laboratory for the plant
 - Central Motor Controls for plant power distribution
 - All in plant required piping and appurtenances
 - All in plant required instruments for plant control and monitoring

Others Scope of Supply:

- All wells
- All well water conveyance piping to the equalization tank
- All motor controls for the wells and signal wiring to the plant (Plant control system would supply signals to start and stop wells)
- All plant effluent conveyance piping

Mobilization/Installation

- Supplied equipment would be place on a compacted crushed stone/dust pad. This pad is not designed for any containment
- Unloading and setup of all equipment
- Interconnecting piping and temporary pipe support
- Interconnecting electrical and instrumentation
- Initial resin loading
- Miscellaneous site items such as security fencing, site safety items and site lighting

Others Scope of Supply:

- Plant property for plant installation
- Plant incoming electric 480V, 3Ø power drop and transformer

- All environmental permits
- All permits which may require planning board or similar approval

Operation, Maintenance and Services

- Supply an operation and maintenance staff dedicated to this facility to perform all required functions
- Removal and Disposal of all expended resin
- Supply of new virgin replacement resin
- Maintenance of all equipment within the scope of supply above
- Process Operations and Discharge monitoring laboratory testing of influent and effluent water

Demobilization Services

- Draining and cleaning of the equalization tank and other equipment.
- Remove and dispose of all remaining resin
- Remove all the equipment, transport back to the GWETS site for storage
- Site cleanup, fence removal, and site recovery

Treatment System – Estimated Prices and Schedule

Prices

The price for the equipment described above: \$ 5,750,000.00

The price for the installation described above: \$ 2,000,000.00

The price for the operation, maintenance and services as described above: \$ 2,650,000.00/month

The price for the demobilization services described above: \$ 500,000.00

Total Estimate based on 18 months of operation - \$ 55,950,000.00

Except as otherwise noted herein, pricing and delivery is DAP the project site in Henderson NV.

All pricing in this proposal is exclusive of any applicable sales, use or excise taxes.

Monthly operation price is for all or any part thereof a month

Monthly operation price is based on a minimum 30 days' notice prior to shutdown

Prices shown above are based on 2015 prices and do not include any escalation or cost of living increases.

Estimates shown above are valid based on +/-20%

Schedule

Upon execution of a contract, the following schedule/milestones are expected;

- 60% Engineering of Temporary Facilities – 8 weeks

- 100% Engineering of Temporary Facilities – 6 weeks, after approval of 60% engineering
- Procurement – 6 weeks, after approval of 60% engineering
- Equipment Assembly/Delivery – 8 weeks, after Procurement
- Mobilization/Installation – 6 weeks, 6 weeks after Equipment Assembly start

Total design/supply/mobilize and install time– 26 weeks.

It is estimated, that the demobilization will be 6 weeks in duration after system shutdown.